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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MICALI, JOSEPH	
			ART UNIT 1793	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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DETAILED ACTION

Status of Application

The argumentation filed on September 17th, 2009 has been entered. Claims 10-23 are pending and presented for examination on the merits.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. DE 24 38 153 by Vollheim et al, in view of US Patent No. 2,368,507 by Welty, Jr.

With respect to claims 10-12 and 18, Vollheim teaches a process where acetylene, from dehydrochlorination of 1,2-dichloroethane (DECa), was selectively hydrogenated to C₂H₄ over a

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fixed bed Pd-SiO₂ catalyst of low porosity with a gas mixture over 99.5% HCl, where processed gases were suitable for recycling and the catalyst was very easily regenerated (**Abstract**).

Vollheim, however alluding to and requiring catalyst regeneration, does not explicitly describe the process of thermal treatment in the presence of oxygen at a temperature between 300 and 700° C.

Welty, Jr. teaches a process for regenerating a catalyst, comprising any number of catalytic metals and inert supports (**column 1, lines 23-36**) by thermal treatment in the presence of oxygen (**claim 1**). Welty teaches a thermal treatment process ranging starting from 500 to under 1200° F, specifically a range of 1050-1100° F, or 566-593° C (**column 4, lines 64-68**).

Volheim teaches the above hydrogenation process including catalyst regeneration while Welty, Jr. discloses a process of regenerating catalysts similar to the ones used by Vollheim, wherein the regeneration is carried out by heating the catalyst in the presence of oxygen up to a temperature of 1050-1100° F, or 566-593° C. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Volheim such that the catalyst is regenerated by heating the catalyst in the presence of oxygen up to a temperature of 1050-1100° F, or 566-593° C, in view of the teachings of Welty, Jr. The use of this manner of regeneration in the process of Vollheim would be the obvious use of one of the limited number of catalyst regeneration methods known in the art and would merely provide the expected regeneration of the hydrogenation catalyst.

With respect to claim 13, Vollheim discloses an inert support with BET surface area of less than 5 m²/g (**pg 3, second paragraph, and translation, pg. 2, third paragraph**).

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With respect to claim 14, as mentioned above, the modified method of Vollheim teaches a thermal treatment in between 1050-1100° F, or 566-593° C (**Welty, Jr., column 4, lines 64-68**).

With respect to claim 15, the modified method of Vollheim teaches a process for regenerating a catalyst, essentially by thermal treatment in the presence of oxygen (**Welty, Jr., claim 1**) or oxygen-containing gas, specifically in the presence of air (**Welty, Jr., column 4, lines 59-68**).

With respect to claim 16, the modified method of Vollheim teaches a process where the thermal treatment consists in a residence in a reactor vessel (**Welty, Jr., Figure 1, and column 4, lines 13-15**). This is a functional equivalent of a stove, which is defined an enclosed heated space. A reactor vessel would then, in fact, be a stove.

With respect to claim 17, Vollheim teaches a process where acetylene, from dehydrochlorination of 1,2-dichloroethane (DECa), was selectively hydrogenated to C₂H₄ over a fixed bed Pd-SiO₂ catalyst of low porosity with a gas mixture over 99.5% HCl, where processed gases were suitable for recycling and the catalyst was very easily regenerated (**Abstract**). The process of Vollheim is the same as recited (other than the specifics of the regeneration, which occurs after the process anyway), and thus, it would be expected to inherently include the same type of contamination as applicant's process.

With respect to claim 19, Vollheim discloses the catalytic metal (Pd) in the catalyst being 0.1-0.2% by weight of the catalyst (**pg 2, middle, and translation, pg 3, middle**).

With respect to claim 20, Vollheim discloses a support with a BET surface area of less than 5 m²/g, a pore volume below 0.01 mL/g, and a particle size of above 0.3 mm (**pg 3, second**

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paragraph, and translation, pg. 2, third paragraph). Such a catalytic metal layer would be present inherently by the disclosure of Vollheim's support and the amount of catalytic metal included. Furthermore, **MPEP 2144.05 [R-5] Obviousness of Ranges** states, "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists."

With respect to claim 21, Vollheim discloses a support with a BET surface area of less than 5 m²/g and a particle size of above 0.3 mm (**pg 3, second paragraph, and translation, pg. 2, third paragraph**). Furthermore, **MPEP 2144.05 [R-5] Obviousness of Ranges** states, "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists."

With respect to claim 22, Vollheim discloses a catalyst of silica (gravel-form) with a preferably 4-5 mm diameter, preferably 0.12-0.18% Pd supported, and having a BET surface area of less than 5 m²/g (**pg 3, second and fifth paragraph, and translation, pg. 2, third and seventh paragraph**).

With respect to claim 23, the modified method of Vollheim discloses such a limitation, as per the combination above with respect to claims 10-12 and 18 as well as the claim 22 teaching directly above (**Abstract**).

Response to Arguments

5. Applicant's arguments filed on September 17th, 2009 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually (DE '153 and Welty), one cannot show nonobviousness by attacking references individually where the

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rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant's attack is not convincing, as the examiner has properly followed the protocol in making a 103 rejection. DE '153 includes potential for regeneration but does not give the specific means for it. Hence, one having ordinary skill in the art of regenerating spent catalysts would have need to find a secondary reference, such as the Welty reference, which discloses such a regeneration process. What the catalyst was used for matters very little. What matters is the catalyst is spent and needs to be regenerated, which both references disclose. Examiner did not engage in hindsight reasoning, and in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The idea of regenerating a spent catalyst at a certain temperature in the presence of oxygen has been shown to be well-known and well-established in the art, and thus, applicant's argumentation is not persuasive. Examiner maintains the combination of DE '153 and Welty.

Response to Arguments from the last office action (6/17/2009) still pertinent:

With regards to the teaching of Vollheim (DE '153), applicant has asserted that the spent catalyst of Vollheim cannot be regenerated. Furthermore, applicant sought out Degussa, the patent holder of DE '153, regarding the catalyst, inactivation through use, and possible

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regeneration. The letter states “no catalyst regeneration possible”. With this, examiner disagrees and has supplied a machine translation of the DE ‘153. Furthermore, examiner has translated several portions of the DE ‘153 text, and found that Vollheim does include a teaching of regenerating the spent catalyst (See pg. 5 of DE ‘153, second paragraph, first sentence – Regeneration of a fixed bed catalyst spent in the invention procedure is economically worthwhile and technically light to carry out). Also, in table 1, example 2 on pg. 9, next to *Regenerierbarkeit* (Regenerator), Vollheim states *leicht möglich*, or possible. Hence, Vollheim does include the teaching and renders argumentation not persuasive. See translation for more evidence.

With regards to the inclusion of the Welty reference, applicant first asserts that “the fact that thermal treatment has been used to regenerate other types of spent catalysts does not affect the patentability of the present invention.” This is faulty, as one having ordinary skill in the art at the time the invention was made would have the knowledge, shown through various prior art references, that thermal treatment can regenerate spent catalysts and thus apply it to the current situation. In response to applicant's argument that Welty is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, though Welty discloses a dehydrogenation catalyst in addition to several other catalysts, such catalysts and prior art are absolutely in the field of applicant's endeavor in terms of catalyst regeneration.

Conclusion

6. Claims 10-23 are rejected.

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7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph V. Micali whose telephone number is (571) 270-5906. The examiner can normally be reached on Monday through Friday, 7:30am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry A. Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph V Micali/
Examiner, Art Unit 1793

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Supervisory Patent Examiner, Art Unit
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